Notice of Allowability	Application No.	Applicant(s)	
	09/868,620	MATSUI ET AL.	
	Examiner	Art Unit	
	Peter J Lish	1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *Preliminary Amendment, filed 3/30/04*.

2. ☒ The allowed claim(s) is/are *1-3 and 5-21*.

3. ☒ The drawings filed on *25 June 2001* are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 1/7/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

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IN THE CLAIMS

Please cancel claim 4 without prejudice or disclaimer, and amend claims 1, 13 and 14 as follows:

Claim 1 (Currently amended): Amorphous nano-scale carbon tubes each containing a main framework which comprises carbon, and each having a straight shape, a diameter of 0.1 to 1000 nm and an amorphous structure, and each having an interlayer spacing (002) between hexagonal carbon layers of at least 3.7 Å, a diffraction angle (2θ) of 24.1 degrees or less, and a 2θ band half-width of at least 3.2 degrees, as determined with a diffractometer by an X-ray diffraction method (incident X-Ray: CuKα).

Claim 2 (Previously Presented): Amorphous nano-scale carbon tubes according to claim 1, each of which comprises hexagonal carbon layers each having a dimension of the planar direction that is smaller than the diameter of the carbon tube, as determined from a transmission electron microscope image.

Claim 3 (Previously Presented): Amorphous nano-scale carbon tubes according to claim 1, each of which has a 2θ band half-width of at least 7.0 degrees, as determined with a diffractomer by an X-ray diffraction method (incident X-ray: CuKα).

Claim 4 (Canceled):

Claim 5 (Previously Presented): Amorphous nano-scale carbon tubes according to claim 1, each of which has a hollow cylindrical shape or a hollow rectangular prism shape.

Claim6 (Previously Presented): Amorphous nano-scale carbon tubes according to claim 1, each of which has at least one open end.

Claim 7 (Previously Presented): Amorphous nano-scale carbon tubes according to claim 1, which are formed on a substrate, a particle or a porous material.

Claim 8 (Previously Presented): A gas-storing material comprising an amorphous carbonaceous material containing the amorphous nano-scale carbon tubes according to claim 1.

Claim 9 (Original): The gas-storing material according to claim 8, which contains at least one of a metal salt and a metal.

Claim 10 (Original) The gas-storing material according to claim 9, wherein the metal salt and the metal are selected from the group consisting of iron, cobalt, nickel, copper, platinum, palladium, rubidium, strontium, cesium, vanadium, manganese, aluminum, silver, lithium, potassium, sodium, magnesium, hydrogen-occluding alloys and metal complexes.

Claim 11 (Original) A method for storing a gas, wherein a gas is stored using the gas-storing material according to any one of claims 8 to 10.

Claim 12 (Original) The method according to claim 11, wherein the gas to be stored is hydrogen, methane, helium, neon, xenon, krypton or carbon dioxide.

Claim 13 (Currently amended): A method for producing a carbon material containing amorphous nano-scale carbon tubes according to claim 1, the method comprising subjecting a heat decomposable resin having a decomposition temperature of 200 to 900 °C to excitation treatment in the presence of a catalyst ~~comprising a metal powder and/or a metal salt,~~

the heat decomposable resin being selected from the group consisting of polytetrafluoroethylene, polyvinylidene chloride, polyvinylidene fluoride and polyvinyl alcohol, and

the catalyst being at least one halide of a metal selected from the group consisting of magnesium, iron, cobalt and nickel.

Claim 14 (Currently amended): The method ~~for producing said carbon material containing the amorphous nano-scale tubes~~ according to claim 13, wherein the catalyst is iron chloride ~~metal powder and/or the metal salt is at least one member selected from the group consisting of alkaline earth metals, iron, cobalt, nickel, chromium and their salts~~.

Claim 15 (Original) The method for producing said carbon material containing the amorphous nano-scale carbon tubes according to claim 13 or 14, wherein the excitation treatment of the heat decomposable resin is carried out by a heat treatment in an inert gas at a temperature of 300 to 3000°C.

Claim 16 (Original) The method for producing said carbon material containing the amorphous nano-scale carbon tubes according to claim 13 or 14, wherein the excitation treatment of the heat decomposable resin is carried out by a light irradiation treatment in an inert gas at a temperature of room temperature to 3000°C.

Claim 17 (Original) The method for producing said carbon material containing the amorphous nano-scale carbon tubes according to claim 13 or 14, wherein the excitation treatment of the heat decomposable resin is carried out by plasma treatment in an inert gas at a temperature of room temperature to 3000°C.

Claim 18 (Original) The method for producing said carbon material containing the amorphous nano-scale carbon tubes according to claim 13 or 14, wherein the excitation treatment of the heat decomposable resin is carried out by electron beam irradiation treatment in an inert gas at a temperature of room temperature to 3000°C.

Claim 19 (Original) The method for producing said carbon material containing the amorphous nano-scale carbon tubes according to claim 13 or 14, wherein the excitation treatment of the heat decomposable resin is carried out by ion beam irradiation treatment in an inert gas at a temperature of room temperature to 3000°C.

Claim 20 (Previously presented): A carbon material containing the amorphous nano-scale carbon tubes according to claim 1.

Claim 21 (Previously presented): The amorphous nano-scale carbon tubes according to claim 1, each of which has an interlayer spacing (002) between hexagonal carbon layers of 3.9 to 4.7 Å, a diffraction angle (2θ) of 18.9 to 22.6 degrees, and a 2θ band half-width of 7.6 to 8.2 degrees, as determined with a diffractometer by an X-ray diffraction method (incident X-ray: CuKα).